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10/511,792

05/09/2005

Jean-Pierre Radenne

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EXAMINER

CHU, CHRIS C

ART UNIT

PAPER NUMBER

2815

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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3 MONTHS

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/511,792

Applicant(s)

RADENNE ET AL.

Examiner

Chris C. Chu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment filed on December 20, 2006 has been received and entered in the case.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following limitation "wherein the second face is adapted to support a plurality of integrated circuits thereon" in claim 16 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

3. Claims 18 and 21 are objected to because of the following informalities:
  - (A) In claim 18, line 4, "substrate film" should be --substrate tape-- because the limitation should be consist with other claims.
  - (B) In claim 21, line 3 from the bottom, "a mask" should be --the mask tape-- because the limitation should be consist with other claims.
  - (C) In claim 21, line 2 from the bottom, "mask" should be --mask tape-- because the limitation should be consist with other claims.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3 – 5, 7 – 11 and 14 – 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoppe et al. (U. S. Pat. No. 5,637,858).

Regarding claim 1, Hoppe et al. discloses in e.g., Fig. 3 an electronic microcircuit module tape (3; column 3, line 38 and see e.g., Fig. 8) including

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- a substrate (11 and 5; column 3, lines 58 and 59. Since applicant does not specifically claim that the substrate is only one single insulating layer, hence the elements 11 and 5 of Hoppe et al. read as a substrate which is formed by two layers.),
- at least one contact area (the area in the elements 5 that are connected to the wires 19; column 3, line 59 and see e.g., Fig. 3) on a first face of this substrate (see e.g., Fig. 3),
- a second face of this substrate (11 and 5) being capable of supporting an integrated circuit (17; column 3, lines 60 and 61) and being provided with cutouts exhibiting contact pad areas (the through holes for the wires 19 which are connected to the areas in the elements 5),
- wherein the tape (3; see e.g., Fig. 8) further includes (see e.g., Fig. 8 and column 6, line 32)
  - o a first adhesive means (22; column 3, line 67) to retain a first face of a mask (25; column 3, line 66) in position against the second face of the substrate (see e.g., Fig. 3), and
  - o wherein the mask (25) comprises a cutout forming a window (26; see e.g., Fig. 3 and column 4, line 1) adapted to “subsequently” receive the integrated circuit (17; column 3, line 65 – column 4, line 4).

Regarding claim 3, Hoppe et al. discloses in e.g., Fig. 3 the mask (25) has a thickness, defined with regard to the second face of the substrate (11 and 5) on which it is mounted, greater than the height of the integrated circuit (17; see e.g., Fig. 3).

Regarding claim 4, Hoppe et al. discloses in e.g., Fig. 3 the first adhesive means (22) enables the integrated circuit to be retained on the substrate.

Regarding claim 5, Hoppe et al. discloses in e.g., Fig. 3 and Fig. 8 a method for conditioning an electronic microcircuit module (3), characterized in that it includes the following stages consisting of

- creating a contact area (the area in the elements 5 that are connected to the wires 19; column 3, line 59 and see e.g., Fig. 3) on a first face of a substrate tape (11 and 5),
- arranging a first adhesive means (22) between a second face of the substrate tape (11) and a first face of a mask tape (25), to keep the mask tape (25) in position against the second face (see e.g., Fig. 3 and Fig. 8),
- perforating (26) the mask tape (25) so that a mask window (26) is facing the contact area (see e.g., Fig. 3 and Fig. 8), and
- arranging a second adhesive means (29; column 4, lines 7 and 8) on the second face of the mask tape (25; see e.g., Fig. 3).

Regarding claim 7, Hoppe et al. discloses in e.g., Fig. 3 and Fig. 8 characterized in that the mask tape (25) has the form of a tape including several windows (26) which are laminated on a support including several contact area before separation into individual units (see e.g., Fig. 8).

Regarding claim 8, Hoppe et al. discloses in e.g., Fig. 3 and Fig. 8 characterized in that the stage consisting in retaining the mask tape (25) in position against the second face of the substrate tape (11 and 5) includes an operation consisting of: laminating the first adhesive (22) means on this second face of the substrate tape (11; see e.g., Fig. 3).

Regarding claim 9, Hoppe et al. discloses in e.g., Fig. 3 and Fig. 8 characterized in that the stage consisting in arranging the first adhesive (22) means on the mask tape (25) includes an operation consisting of depositing the adhesive means on the mask tape (column 6, lines 21 –

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26), and then perforating this mask tape (25) before laminating it against the second face of the substrate tape (11; see e.g., Fig. 8).

Regarding claim 10, Hoppe et al. discloses in e.g., Fig. 3 and Fig. 8 characterized in that it includes a subsequent stage consisting in gluing an integrated circuit (17) to the second face of the substrate tape (11 and 5), on the first adhesive means (see e.g., Fig. 8).

Regarding claim 11, Hoppe et al. discloses in e.g., Fig. 3 and Fig. 8 characterized in that it includes a stage consisting of: gluing the mask tape (25) equipped with an electronic circuit to the bottom of a card recess (9; see e.g., Fig. 1 and Fig. 3).

Regarding claim 14, Hoppe et al. discloses in e.g., Fig. 3 and Fig. 8 separating the individual module (3) in the form of a parallelepiped (see e.g., Fig. 1 and Fig. 3).

Regarding claim 15, Hoppe et al. discloses in e.g., Fig. 3 a second adhesive (29) means dispensed on a second face of the mask (25; see e.g., Fig. 3).

Regarding claim 16, Hoppe et al. discloses in e.g., Fig. 3 an electronic microcircuit module tape (3; column 3, line 38 and see e.g., Fig. 8) comprising:

- a substrate tape (11 and 5; column 3, lines 58 and 59) having a first face and an opposite second face (see e.g., Fig. 3),
- wherein the second face (the surface where the chips are attached) is adapted to support a plurality of integrated circuits (17) thereon (see e.g., Fig. 7a);
- a plurality of electrically conductive contact areas (the area in the elements 5 that are connected to the wires 19; column 3, line 59 and see e.g., Fig. 3) on the first face of the substrate tape (11 and 5); and

- a mask tape (25) having a first side attached to the second face of the substrate tape (11 and 5; see e.g., Fig. 3),
- wherein the mask tape (25) comprises cutouts forming windows (26) adapted to subsequently receive the integrated circuits when the integrated circuits are attached to the second face of the substrate tape (17; column 3, line 65 – column 4, line 4).

Regarding claim 17, Hoppe et al. discloses in e.g., Fig. 3 the substrate tape (11 and 5) comprising cutouts (the openings for the wires 19) to allow access to the contact areas (the area in the elements 5) through the substrate tape (11 and 5) from the windows (26). Since the window 26 of Hoppe et al. is a two-step opening and the one of the step opening that receives the chip 17 is formed over the openings for the wires 19, hence the window 26 of Hoppe et al. fully anticipates this limitation.).

Regarding claim 18, Hoppe et al. discloses in e.g., Fig. 3 the substrate tape (11 and 5) comprising a first adhesive layer (22) to retain a first face of the mask film (25) in position against the second face of the substrate tape [film] (11 and 25; see e.g., Fig. 3).

Regarding claim 19, Hoppe et al. discloses in e.g., Fig. 3 a second adhesive layer (29) on a second opposite side of the mask tape (25; see e.g., Fig. 3).

Regarding claim 20, Hoppe et al. discloses in e.g., Fig. 3 the substrate tape (11 and 5) and the mask tape (25) being adapted to be cut into individual modules (3) after the integrated circuits (17) being attached to the second face of the substrate tape (see e.g., Fig. 3).

Regarding claim 21, Hoppe et al. discloses in e.g., Fig. 3 an electronic microcircuit module tape (3; column 3, line 38 and see e.g., Fig. 8) comprising:

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- a substrate tape (11 and 5; column 3, lines 58 and 59) having a first face and an opposite second face,
- wherein the second face (the surface where the chip 17 is attached) is adapted to support an integrated circuit (17) thereon (see e.g., Fig. 3); and
- electrically conductive contact areas (the areas in the elements 5 that are connected to the wires 19) attached to the first face of the substrate tape (11 and 5; see e.g., Fig. 3),
- a mask tape (25) having a first side attached to the second face of the substrate tape (11 and 5; see e.g., Fig. 3),
- wherein the substrate tape (11 and 5) comprise apertures (the openings for the wires 19) through the substrate tape (11 and 5) to allow access to the contact areas (the areas in the elements 5) on the first face of the substrate tape (11 and 5) from the second face of the substrate tape (11 and 5) by conductors (19) subsequently connected between the integrated circuit (17) and the contact areas (the areas in the elements 5) when the integrated circuit (17) is attached to the second face of the substrate tape (11 and 5; see e.g., Fig. 3),
- wherein the second face of the substrate tape (11 and 5) is adapted to have a mask (25) attached thereto which has a window (26) to position the mask (25) relative to the integrated circuit (17) and conductors (19; see e.g., Fig. 3).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoppe et al. in view of Atsumi (U. S. Pat. No. 5,736,781).

Regarding claims 2 and 6, while Hoppe et al. discloses the use of the mask (25) and a card (1; column 3, line 41), Hoppe et al. does not disclose the material of the card to be identical to that of the mask's material (i.e., polyvinyl chloride; column 3, lines 1 – 6 of Hoppe et al.). Atsumi teaches in e.g., Fig. 2 a mask (12; column 3, lines 16 and 17) being made from a material (i.e., polyvinyl chloride) identical to that of a card (40; column 3, lines 61 and 62) provided receive a module (1; column 4, line 8). It would have been obvious to one of ordinary skill in the art at the time when the invention was made to apply the polyvinyl chloride of Atsumi as the specific material to form the card of Hoppe et al. as taught by Atsumi to provide similar rigidity as the card body (column 3, lines 16 and 17).

8. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoppe et al. in view of Leydier et al. (U. S. Pat. No. 6,217,685).

Regarding claims 12 and 13, while Hoppe et al. discloses the use of the gluing the mask tape into the recess of the card, Hoppe et al. does not disclose the specific material (claim 12) and process (claim 13) of the glue. Leydier et al. teaches in e.g., Fig. 1 depositing cyanoacrylate glue (14; column 3, lines 8 and 9) between a mask (131; column 2, lines 60 and 61) and the bottom of a recess (12; column 2, line 57), and soldering by emission of ultrasound waves (column 3, lines 17 – 21). It would have been obvious to one of ordinary skill in the art at the

time when the invention was made to apply the cyanoacrylate glue and the ultrasound waves of Leydier et al. as the specific material and process to glue the mask tape to the recess of a card of Hoppe et al. as taught by Leydier et al. to increase production capacity by reducing the pressing time (column 3, lines 22 – 29).

### *Response to Arguments*

9. Applicant's arguments filed on December 20, 2006 have been fully considered but they are not persuasive.

On page 10, applicant argues "Hoppe et al. does not disclose or suggest a tape adapted to receive an IC chip as claimed in amended claim 1." This argument is not persuasive. Since applicant does not specifically claim that the substrate is only one single insulating layer, hence the elements 11 and 5 of Hoppe et al. read as a substrate which is formed by two layers. Thus, the tape (11 and 5) of Hoppe et al. is adapted to receive an IC chip as claimed in the newly amended claim 1.

Finally, applicant argues "In Hoppe et al., the side 43 of the band 47 might form applicant's claimed second face, but the opposite side 61 clearly does not form applicant's claimed first face. ... form applicants' claimed first and second faces of the claimed substrate with the mask tape on the second face and the contact areas on the first face. The features of claim 5 are not disclosed or suggest in the cited art." This argument is not persuasive because Hoppe et al. clearly shows in e.g., Fig. 3 and Fig. 7a the substrate tape (11 and 5) having first and second faces (see e.g., Fig. 3) with the mask tape (25) on the second face (the surface where the

CA: contact area

Fig. 1 is a cross-sectional view of a semiconductor device. It shows a central layer (5) surrounded by a material (11) and a layer (17). A contact area (CA) is indicated by an arrow pointing to a structure (4) on top of layer (5). Other labeled parts include 22, 19, 9, 29, 26, 21, 25, and 7.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is 571-272-1724. The examiner can normally be reached on 11:30 - 8:00.

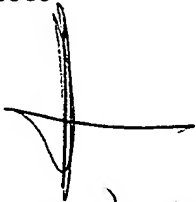
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Chris C. Chu  
Examiner  
Art Unit 2815

c.c.  
Friday, March 09, 2007



SE Kenneth Parker